Influence of Big Data Competencies and Self-Efficacy on Detection of Financial Statement Fraud on Internal Auditors in Indonesia

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ABSTRACT

Detection of financial statement fraud is important in maintaining the integrity and reliability of a company's financial information. Internal auditors have the responsibility to detect fraud in the company's financial statements. This study aimed to test whether the existence of big data competencies can help internal auditors in the detection of financial statement fraud. This study also examined whether psychological factors such as self-efficacy can affect internal auditors in the detection of financial statement fraud. The research method used was the quantitative method. The research focused on internal auditors who employed in Indonesian companies. Data collection used questionnaire with 230 samples and analyzed using regression analysis using SmartPLS software. The results showed that big data competencies had a positive and significant effect on self-efficacy. The ability to analyze big data competencies is crucial role in detecting financial statement fraud, and individuals' confidence in their skills also had a positive impact on fraud detection. Additionally, self-efficacy served as a significant mediator between big data competencies and the detection of financial statement fraud. This research has significant implications for practitioners and organizations in Indonesia in the context of developing strategies to improve the ability of internal auditors to detect fraudulent financial reports.

Keywords: Big Data Competencies, Self-Efficacy, Detection of Financial Statement Fraud, Internal Auditor

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INTRODUCTION

Detection of financial statement fraud is important in maintaining the integrity and reliability of a company's financial information. Success in detecting financial statement fraud can help companies avoid potential financial losses, tarnished reputations, and possible legal consequences (Roszkowska, 2021). One of the parties that plays an important role in detecting fraudulent financial statements is the internal auditor. Internal auditors have the responsibility to detect fraud in the company's financial statements (White et al., 2022). To carry out their duties, the internal auditor collects and analyzes data based on the company's financial and operational information. Internal auditors conduct audits independently and objectively, use appropriate and up-to-date testing techniques, identify gaps in the company's internal control system, and provide recommendations for improvements or suggestions to company management (Othman et al., 2015; Shamki & Alhajri, 2017). Internal auditors must also understand accounting standards and principles as well as applicable regulations, and continue to update and improve their competencies through relevant training and certification. In detecting fraudulent financial statements, internal auditors must be careful and professional, without making unproven accusations or abusing their authority (Fatah et al., 2021). Currently, internal auditors in Indonesia face increasing pressure to effectively detect fraud in financial reports. With increasingly complex markets and increasing demands for transparency, it is important for internal auditors to have adequate tools and skills to deal with rapidly growing fraud risks.

Internal audit has a crucial role in ensuring the integrity and quality of a company's financial reports. In the midst of global economic dynamics and business complexity, internal auditors in Indonesia face increasingly diverse challenges in carrying out their functions. One of the main challenges is the detection of fraud in financial reports, which can harm a company both financially and reputationally (Alzoubi, 2019; Dianita, 2015). The internal audit process involves examining and verifying financial documents and records, as well as testing existing control procedures. Internal auditors also conduct interviews with company employees and management to understand more about business operations and practices used. During the audit process, internal auditors use various techniques and analytical tools to detect potential signs of financial statement fraud (Behrend & Eulerich,

2019). Internal auditors analyze financial trends, compare data with industry benchmarks, perform financial ratio analysis, and monitor suspicious transactions and activities. Internal auditors can also carry out physical examinations of company assets to ensure existence and compatibility with financial records (Drogalas et al., 2017; Appelbaum et al., 2017; Boskou et al., 2019).

In addition, internal auditors are also responsible for identifying weaknesses in the company's internal control system. Internal auditors evaluate the effectiveness of existing control procedures, identify potential gaps and risks, and provide recommendations for improvement. Internal auditors work closely with company management to correct these weaknesses and improve the reliability and quality of financial reports (Gros et al., 2017; Oussii & Boulila Taktak, 2018).

In order to carry out their duties properly, internal auditors must continuously update their knowledge and skills. Internal auditors must always update themselves with the latest accounting standards and regulations that are relevant to work (Alzeban & Sawan, 2015; Chang et al., 2019). In addition, attending appropriate training and certification, such as the Certified Internal Auditor (CIA) certification, can help increase the competence and credibility of internal auditors. Aliases et al. (2019) posited that in carrying out their duties, internal auditors must comply with professional ethics and maintain integrity. Internal auditors must remain objective and impartial in conducting audits. Internal auditors must also maintain the confidentiality of information obtained during the audit process (Steyn, 2021).

In detecting fraudulent financial statements, internal auditors can consider using big data competencies. Big data competencies provide powerful tools and techniques to collect, analyze, and make sense of the big data associated with financial reports. According to Cao et al. (2015), big data has a significant potential to support the detection of fraudulent financial reporting activities. By having the ability to collect and analyze large amounts of data, big data can provide deeper insights into fraud patterns that may be difficult to detect with conventional methods. Big data competence is crucial for internal auditors in facing increasingly complex challenges in detecting fraudulent financial statements (Krahel & Titera, 2015).

The use of big data competencies by internal auditors can provide several benefits in detecting financial statement fraud. By using sophisticated data collection techniques, such as web scraping or data mining, internal auditors can access and collect a wider and more diverse range of data sources, including company internal and external data (Drogalas et al., 2017; Alzoubi, 2019). The data collected may include information from various systems and platforms, including financial transactions, inventory records, customer data, and industry data. By having access to richer data, internal auditors can find clues or patterns that cannot be found by conventional methods (Appelbaum et al., 2017).

According to Alles and Gray (2016), big data competency enables internal auditors to use sophisticated data analysis algorithms to identify complex fraud patterns. Using techniques such as social network analysis, predictive modeling analysis, or complex statistical analysis, internal auditors can identify anomalies or suspicious patterns of behavior in financial data. For example, internal auditors may spot unusual spending patterns, unusual transactions, or unusual relationships between business entities. By leveraging artificial intelligence and natural language processing techniques, internal auditors can examine text documents, such as contracts or emails, to detect potential indications of fraud (Huerta & Jensen, 2017; Cockcroft & Russell, 2018).

Big data competence can also assist internal auditors in conducting more in-depth and timely analyses of financial data. Internal auditors can use sophisticated data visualization techniques to present financial information in a more intuitive and structured manner. This can help internal auditors identify suspicious trends, patterns or discrepancies more easily. In addition, with fast processing capabilities, internal auditors can perform real-time analysis of financial data, enabling them to detect fraud more quickly and take appropriate action (Alles & Gray, 2016; Appelbaum et al., 2017).

In addition to big data competencies, psychological factors can also affect the ability of internal auditors to detect fraudulent financial statements. Self-efficacy is a psychological factor that influences the auditor's ability. Self-efficacy is an individual's belief in his ability to achieve goals, can affect the effectiveness of the auditor in dealing with challenging tasks (Mohd Sanusi et al., 2018). Self-efficacy can motivate internal auditors to

improve their ability to detect financial statement fraud and provide all the capabilities they have to carry out their duties effectively. Self-efficacy is one of the key factors in motivating and improving the ability of internal auditors (Su et al., 2016).

Self-efficacy can affect the performance of internal auditors in detecting fraudulent financial statements in several ways. Auditors who have a high level of self-efficacy will have strong confidence in their ability to identify indications of fraud (Amlayasa & Riasning, 2022). Internal auditors will feel more confident in facing challenging assignments and have an internal drive to look for evidence that points to fraud. With high confidence, internal auditors will be bolder and more confident in taking the necessary steps to uncover fraud (Atmaja & Sukartha, 2021; Djaddang & Lysandra, 2022).

High self-efficacy can also motivate internal auditors to continue learning and improving skills. Auditors with high self-efficacy believe that internal auditors have the ability to master and overcome complex challenges (Sariningsih et al., 2023). Therefore, internal auditors will actively try to increase their knowledge and skills in detecting fraudulent financial statements. This can involve participating in professional training and development, reading related literature, or collaborating with peers to share knowledge and experience.

High self-efficacy can also affect the attitude and approach of the internal auditors towards the internal auditor's duties. Auditors with high self-efficacy will have a proactive and courageous orientation in dealing with fraud (Alsabahi et al., 2021). Internal auditors will be more likely to make additional efforts to gather strong evidence, perform in-depth analyses, and test control procedures more carefully. In addition, auditors with high self-efficacy are also more likely to question inconsistent or suspicious information, as well as to engage in critical discussions with company management.

Choosing a topic about the influence of big data competence and self-efficacy on fraud detection in internal auditors' financial reports in Indonesia is seen as a strategic step. The use of big data in internal audit is becoming a global trend and has great potential to improve fraud detection

capabilities. Self-efficacy, or individual self-confidence, is considered a psychological factor that can strengthen internal auditors' abilities in facing complex tasks. A number of previous studies have revealed the importance of big data competencies and psychological factors such as self-efficacy in the context of auditing and fraud detection. However, at the local level, there is a research gap that needs to be filled, especially in the context of internal auditors in Indonesia. Previous research tends to focus more on internal audit practices in general, while research that specifically examines the influence of big data competency and self-efficacy in fraud detection is still limited.

Therefore, this research aimed to fill this gap by examining in depth how big data competency and self-efficacy can influence the ability of internal auditors in Indonesia to detect fraud in financial reports. Through further understanding of these factors, it is hoped that it can make a positive contribution to internal audit practices in Indonesia and help companies face increasingly complex financial security challenges. The purpose of this study was to test whether having adequate big data skills can assist internal auditors in uncovering cases of fraudulent financial statements. This study also examined whether psychological factors such as self-efficacy can influence internal auditors in detecting fraudulent financial statements. This research is expected to provide additional insights about the importance of big data competence and self-efficacy in improving the ability of internal auditors to detect fraudulent financial reports. The results of this research are expected to provide valuable input for companies and organizations in Indonesia in developing policies and training programs that are more effective in increasing the ability to detect fraud in internal auditors' financial reports.

The research method used was a quantitative approach by collecting data through questionnaires to internal auditors in companies in Indonesia. The collected data was analysed using statistical techniques such as regression analysis and path analysis to examine the relationship between the variables studied. The results of this study are expected to provide a better understanding of the factors that influence the ability of internal auditors to detect fraudulent financial statements, as well as provide practical recommendations for companies and organizations in improving the quality and effectiveness of their internal audit function.

The systematic structure of writing this research includes an introduction that explains the research background, research problem and research objectives. Additionally, the literature review and hypothesis explains the phenomenon of the relationship between variables as well as explanations of previous research and development of research hypotheses. Research methods explain the research design, research population and sample, as well as data analysis. Therefore, the research results section describes the data analysis carried out. Meanwhile, the conclusion explains the research findings, implications and suggestions.

LITERATURE REVIEW AND HYPOTHESIS

Big data competencies are a set of skills, knowledge, and qualifications needed to work with big data effectively. In an increasingly advanced digital era, the volume, speed, and diversity of data produced is greater (De Mauro et al., 2018). To overcome this challenge, individuals and organizations must have sufficient capabilities to manage and analyze big data in order to gain valuable insights and make informed decisions. Big data competencies involve several aspects, including the ability to understand and use tools and technologies related to big data, such as large-scale data storage systems, analytical software, cloud infrastructure, and sophisticated data processing platforms. This includes an understanding of data storage and processing techniques, and relevant system integration (Krahel & Titera, 2015; Cao et al., 2015).

One of the important competencies in big data is an understanding of the technological infrastructure that supports big data management (Wang et al., 2018). This includes an understanding of data storage systems that can handle large volumes of data. In addition, the ability to understand data processing techniques and algorithms is also required. It includes an understanding of distributed data processing, parallel processing techniques, and efficient algorithms for performing analysis on large volumes of data. An understanding of real-time processing and streaming techniques is also important, especially in situations where data is sent continuously and needs to be processed quickly to gain more timely insights (Alles & Gray, 2016; Appelbaum et al., 2017). The ability to integrate different systems and data sources is also part of big data competence (Cockcroft & Russell, 2018).

This involves an understanding of data integration concepts, such as ETL (Extract, Transform, Load) and data virtualization, as well as the ability to connect and unify data from different sources.

In addition to technical skills, big data competencies also involve analytical skills and domain understanding (Akhtar et al., 2019). The ability to deeply analyze data, identify patterns and trends, and generate useful insights are qualities that are important in harnessing the potential of big data. Domain or business understanding is also important to link analysis results with relevant contexts and make the right decisions based on the insights obtained (Ghasemaghaei et al., 2018). In order to develop big data competencies, individuals can take specific courses or training on big data technology and concepts, as well as participate in projects that involve managing and analyzing big data. Organizations can also invest in employee training and development to ensure that internal auditors have the necessary competencies in dealing with the big data era (Gamage, 2016).

Having strong big data competencies can increase individual knowledge and skills in managing and analyzing big data. With increased knowledge and skills, individuals can feel more confident in dealing with tasks that involve big data (Ferraris et al., 2019). Furthermore, through experiences and practices related to big data competencies, individuals can develop a higher level of confidence. By facing and successfully completing tasks that involve big data repeatedly, individuals can accumulate positive experiences that strengthen confidence in the internal auditor's own abilities. Big data competencies also enable individuals to develop skills in solving problems involving big data. Thus, big data competencies can influence individual self-efficacy by increasing knowledge, skills, experience, problem-solving abilities, and positive outcomes associated with big data (Nurdiono & Gamayuni, 2018).

In addition to increasing self-confidence and self-efficacy, big data competencies also open up better career opportunities for individuals. In the digital era that continues to grow, the need for professionals who have the ability to manage and analyze big data is getting higher. By mastering big data competencies, individuals can become valuable assets for organizations that wish to exploit the potential of data (Huerta & Jensen, 2017). The ability to collect, manage, and analyze data on a large scale can give companies a

competitive advantage. Individuals with solid big data competencies can fill critical roles in analytics or decision-making teams, helping organizations generate valuable business insights, improve operational efficiency, and identify new opportunities.

In addition, big data competencies also provide benefits in making better decisions (Schoenherr & Speier-Pero, 2015). By being able to analyze and interpret complex data, individuals can make more informed and fact-based decisions. In-depth data analysis can help identify trends, patterns, and relationships that are not directly visible (Wang et al., 2018). This enables better decision-making in a variety of areas, including marketing, finance, operations and product development. By understanding big data and having relevant skills, individuals can support more effective and strategic decision making. In an era where big data continues to grow and become increasingly important in various industries, big data competence is a valuable asset for individuals and organizations. By mastering these skills, individuals can improve qualifications, increase career opportunities, and become key players in harnessing the potential of big data (Ferraris et al., 2019).

Furthermore, big data competencies enable internal auditors to collect and analyze large volumes of data quickly and efficiently (Tang et al., 2017). By utilizing sophisticated data analysis techniques, such as statistical analysis, predictive analysis, and visualization analysis, auditors can identify patterns, trends, and anomalies that indicate the possibility of fraud in financial statements (Cao et al., 2015). Big data competencies extend the auditor's ability to find complex relationships between data and uncover indications of fraud that may be hidden in big data. In big data, sometimes there are unusual patterns or anomalies that can indicate fraud in financial reports. Big data competencies allow auditors to identify these patterns using sophisticated data analysis algorithms. Auditors who are competent in big data can dig deeper into the data to look for transactions or patterns that are inconsistent with business norms or historical patterns (Huerta & Jensen, 2017). With this can be found indications of fraud that may be missed by traditional detection methods. Auditors can also utilize additional data sources, such as transaction data, sensor data, social media data, and public data, to obtain additional insights about the entity being audited. By integrating and analyzing data from these various sources, the auditor can find relationships and linkages that were not seen before, which

can be potential clues to fraudulent financial statements (Griffin & Wright, 2015). Big data competencies also enable auditors to perform data analysis in real-time, so that internal auditors can detect fraud more quickly.

Hypothesis Development

In fraud detection, big data competence can provide significant advantages for internal auditors (Joshi & Marthandan, 2020). In a scenario where data manipulation and financial fraud can become increasingly complex and difficult to detect, the ability to manage and analyze big data is critical. By using powerful data analysis tools, auditors can perform more thorough and in-depth examinations of data (Huerta & Jensen, 2017). They can identify anomalies, outliers and suspicious patterns in financial data, and correlate information from multiple data sources to get a more complete picture. Thus, big data competence can assist internal auditors in detecting fraud and protecting the interests of the organization.

In addition, big data competencies can also increase the overall efficiency and effectiveness of the internal audit process. By using sophisticated data analysis tools and techniques, auditors can automate several analytical tasks that previously consumed significant time and resources (Chang et al., 2019). For example, the auditor may use predictive analysis techniques to identify high risks or areas that need to be examined in greater depth, thereby enabling internal auditors to focus on areas with greater potential risk (Garven & Scarlata, 2020). Big data competence also enables auditors to examine large amounts of data quickly, speeding up the audit process and enabling auditors to get more work done in less time. Departing from the literature, the hypothesis in this study was as follows:

H1: Big data competencies have a significant effect on self-efficacy
H2: Big data competencies have a significant effect on the detection of financial statement fraud

Self-efficacy plays an important role for auditors as a motivating factor when facing difficulties and conflicts. Internal auditors with high self-efficacy have more persistence and persistence in difficult situations. This is because internal auditors assume that failure is caused by inadequate efforts (Gaol, 2018). The high level of self-efficacy possessed by an auditor will

increase the chances of detecting fraud (Saputra et al., 2021). Self-efficacy is an indicator of an auditor's assurance in their capacity to accomplish the given task. Internal auditors with a high level of self-efficacy tend to feel confident in their abilities at work and tend to cultivate a strong personality, reduce anxiety levels so as to increase their ability to carry out executives successfully (Kristiyanti, 2017). The significance of self-efficacy on the proficiency of managers and auditors should not be overlooked (Chen et al., 2013).

Atmaja and Sukartha (2021) posited that high self-efficacy can affect the performance of an auditor in several ways. Auditors with high levels of self-efficacy tend to be more courageous in facing challenges and taking initiatives to find solutions. Auditors with a level of efficacy have confidence that they have the ability to overcome problems that arise in their work. This can lead to being proactive in detecting and preventing fraud, as well as feeling confident in your ability to deal with it. High self-efficacy can also increase the mental resilience of an auditor (Zelamewani & Suputra, 2021). In stressful jobs and complex situations, auditors with high self-efficacy tend to be more resistant to stress and more easily recover after facing failure or difficulty. They have the belief that they can overcome the challenges they face, so they are not easily discouraged or affected by possible failures.

Furthermore, high self-efficacy can affect an auditor's perception and attitude towards his duties. Auditors with high self-efficacy tend to have a more positive perception of tasks and feel capable of handling complex and challenging tasks (Iryani, 2017). This can increase motivation to work well and achieve good results in his work. In addition, high self-efficacy can also have a positive impact on relationships with other parties. Auditors with high self-efficacy tend to be more confident in interacting with colleagues, management and the entity being audited (Mohd Sanusi et al., 2018). They have the belief that they can contribute effectively and can bring about positive changes in the organization. In terms of fraud detection, high self-efficacy can assist internal auditors in dealing with challenges and uncertainties related to their work. Auditors with high self-efficacy tend to be more committed to seeking evidence of fraud and are not afraid to report their findings (Pawitra & Suhartini, 2019; Cahya & Mukiwihando, 2020). They have confidence that they have the ability to do their job properly and can reveal fraud that has occurred.

Iskandar and Sanusi (2011) showed that high self-efficacy is associated with better audit judgments, findings that are consistent with research conducted on auditors in Indonesia. Therefore, it is important to understand the extent to which motivational factors such as self-efficacy can change when auditors have different characteristics (big data competence) which in turn increases the risk of financial statement fraud detection. According to Tian et al. (2019) and Liu (2019), there is a positive correlation between self-belief and the ability to make sound judgments, with higher levels of self-efficacy resulting in better performance (Sanusi et al., 2018; Zare Bidoki et al., 2023). Likewise, studies of internal auditor performance support the same relationship. An auditor who has strong self-efficacy will be able to carry out his duties effectively and improve his ability to identify fraudulent behavior (Krichene & Baklouti, 2021). Therefore, the third hypothesis was:

H3: Self-efficacy has a significant effect on the detection of financial statement fraud

In the context of big data competence, high self-efficacy can strengthen the auditor's ability to make better judgments and findings. Auditors with good big data competence have higher confidence in managing and analyzing complex data (Wang et al., 2018). They believe they have the necessary knowledge and skills to harness the potential of big data and gain valuable insights. With high self-efficacy, auditors can be more confident in making the right audit decisions and can identify signs of fraud in financial reports (Atmaja & Sukartha, 2021).

Big data competence can also provide additional advantages in terms of auditor self-efficacy. In dealing with large and complex data, auditors with good big data competence can feel more confident in dealing with it. They have the understanding and skills necessary to manage and analyze data at scale, which can increase their confidence in dealing with tasks involving big data. By having the ability to overcome challenges related to big data, auditors with strong big data competencies can feel more confident and ready to face complex situations.

Furthermore, big data competency can improve efficiency and accuracy in conducting data analysis. By using sophisticated data analysis techniques, auditors with big data competence can dig deeper into the

data to identify patterns, trends and anomalies that might indicate fraud (Appelbaum et al., 2017). This ability can increase confidence in finding evidence of fraud and generate strong findings. In order to develop auditor self-efficacy, it is important for auditors to continuously improve and develop competencies, including big data competencies. This can be done through training, relevant work experience and continuous learning. By increasing big data competence, auditors can strengthen self-efficacy and improve performance in detecting fraud in financial reports. Thus, the fourth hypothesis was:

H4: Self-efficacy mediates big data competencies and detection of financial statement fraud.

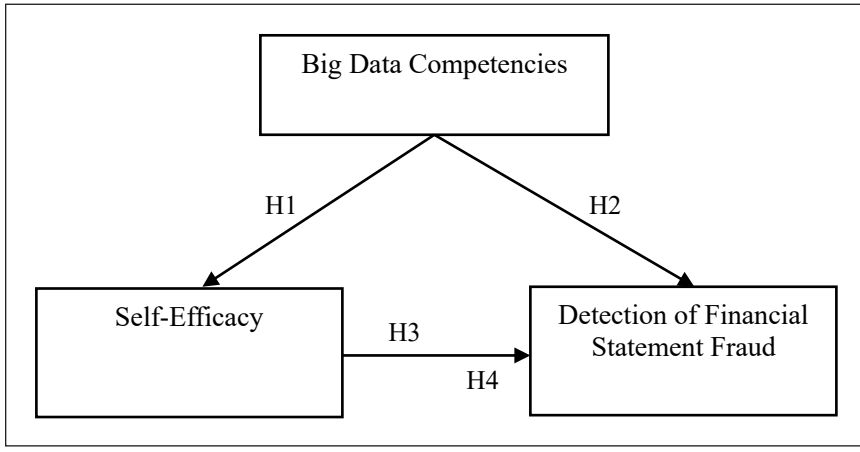

Figure 1: Conceptual Framework

RESEARCH METHOD

This study used a quantitative research approach. The intended population was internal auditors working in Indonesian companies. Sample selection was done using the purposive sampling method, namely by selecting respondents who had relevant experience and knowledge in the field of financial auditing. Data collection in this study used a survey method distributed to respondents on a Likert scale of 1 to 7, where 1 indicated strongly disagree and 7 indicated strongly agree. The respondents in this study were staff and managers working in State-Owned Enterprises

(SOEs) listed on the Indonesia Stock Exchange (IDX). The sample used in this study consisted of 203 samples. This sample size was obtained from the initial distribution of 300 questionnaires. The number of collected questionnaires was 217. However, there were 14 questionnaires that could not be used because they were not completed properly. The variables used in this research included big data competency, self-efficiency, and financial report fraud detection.

Table 1: Questionnaire

	Big Data Competencies	Reference
1.	Do you have basic knowledge of big data technology?	Akhtar et al., 2019
2.	Do you have sufficient data analysis skills to cope with large volumes of data?	
3.	How confident are you in implementing big data solutions to solve business problems?	
4.	To what extent do you feel skilled in optimizing the performance of big data algorithms?	
	Self-Efficacy	
1.	To what extent do you believe you can complete your assigned work tasks well?	Su et al., 2016
2.	Do you feel capable of overcoming obstacles or challenges that arise in your work?	
3.	How confident are you in making important decisions in your work environment?	
4.	Do you believe you can contribute significantly to a company project or initiative?	
5.	How confident are you in communicating with your colleagues or superiors?	
	Detection of Financial Statement Fraud	
1.	How often do you conduct in-depth analysis of company financial reports?	Cao et al., 2015
2.	To what extent do you feel able to identify anomalies or inconsistencies in financial data?	
3.	How effective were you at connecting your analysis findings to possible fraud?	
4.	How confident are you that you can accurately detect fraudulent financial statements in a corporate environment?	

The respondents in the study consisted of 72 managers and 131 staff members from various State-Owned Enterprises (SOEs) listed on the Indonesia Stock Exchange. Among the respondents, 128 were male, while the remaining 75 were female. In terms of educational background, 69

respondents had completed their education up to the high school level, 98 respondents held a bachelor's degree (S1), and 36 respondents had pursued further education up to the master's (S2) or doctoral (S3) level.

Data Analysis

Data analysis in this study was analysed using regression analysis to test the effect of big data competence and self-efficacy on detecting financial statement fraud using the SmartPLS software. This research method allows researchers to collect data systematically and analyze the relationship between the variables studied. By using a quantitative approach, this study was able to produce findings that could be analysed statistically to test the proposed hypotheses. In addition, the use of questionnaires as a data collection tool allows researchers to obtain views and perceptions of internal auditors related to big data competence, self-efficacy, and detection of financial statement fraud. Regression analysis was used in this study to examine the effect of the independent variables (big data competence and self-efficacy) on the dependent variable (financial statement fraud detection). In the regression analysis, the researcher can identify whether there is a significant relationship between these variables and the extent to which they affect the dependent variable.

The SmartPLS software was used to perform statistical analysis in this study. SmartPLS is software commonly used for path analysis and Structural Equation Modeling (SEM). Structural Equation Modeling (SEM) is a multivariate analysis technique developed to cover the limitations of previous analytical models that have been widely used in statistical research (Sasongko et al., 2016). By using this software, researchers can test the conceptual model that has been formulated and analyze the relationship between variables in more depth. Through this research approach, it was hoped that a better understanding can be obtained about the effect of big data competence and self-efficacy on the detection of financial statement fraud. The results of this study can contribute to the development of theory and practical understanding in the field of financial auditing, especially in the context of the use of big data and auditor motivation factors.

RESULT

In testing the influence analysis of big data competence and self-efficacy on detecting financial statement fraud, factor analysis or structural equation models were tested to measure the strength of the relationship between indicators and latent variables used. This analysis test used the standard loading factor value as the main basis, where if the standard loading factor value obtained was greater than 0.6, it means that the indicators used to measure latent variables can be used.

Furthermore, validity and reliability testing were also carried out. Validity testing is used to measure the extent to which the questionnaire used or the data collection tool is able to measure the variables used. Validity testing aims to ensure that the measuring instruments used actually measure the variables being measured and have the right relationship with the variables used in this study. Validity testing relies on assessing both the Average Variance Extracted (AVE) value and the Cronbach's Alpha value obtained from latent variables. If the AVE value exceeds 0.5 or the Cronbach's Alpha value exceeds 0.6, this indicated that the questionnaire or data collection tool used is valid. Meanwhile, reliability testing is used to evaluate the reliability, consistency, and stability of questionnaires or data collection tools. Reliability testing is based on the Composite Reliability (C.R.) value, where if the C.R. was more than 0.7, the questionnaire used is considered reliable.

Factor testing or structural equation models were conducted to examine the relationship between latent variables (such as big data competence and self-efficacy) and observed variables (such as detection of financial statement fraud). In this analysis, data from respondents is used to test the extent to which latent variables affect the observed variables. This test includes testing the significance of the path coefficient (path coefficient) to see whether the relationship between the latent variable and the observed variable is significant. In order to ensure the validity and reliability of research results, it is important to carry out validity and reliability tests. Testing validity and reliability is an important step in data analysis to ensure that the measurement tools used are reliable and able to accurately measure the variables studied. Thus, the research results will have a higher level of confidence.

Table 2: Factor Analysis Test, Validity and Reliability

Variable		Std. Loading Factor	Average Variance Extracted (AVE)	Cronbach's Alpha	Composite Reliability
Big Data Competencies	BDC1	0.830	0.711	0.865	0.908
	BDC2	0.824			
	BDC3	0.878			
	BDC4	0.840			
Self-Efficacy	SE1	0.843	0.748	0.916	0.937
	SE2	0.879			
	SE3	0.903			
	SE4	0.827			
	SE5	0.869			
Detection of Financial Statement Fraud	DFSF1	0.916	0.816	0.924	0.947
	DFSF2	0.956			
	DFSF3	0.905			
	DFSF4	0.832			

Source: Processed data (2023)

The results of the factor analysis test carried out on the big data competency variable indicators, as shown in Table 2, show standard loading factor values in the range of 0.824 to 0.878. This showed that the indicators used by big data competency variables could be used. Furthermore, the self-efficacy variable obtained a standard loading factor value ranging from 0.827 to 0.903, and the financial statement fraud detection variable obtained a standard loading factor value ranging from 0.832 to 0.956. In other words, the same indicators used to measure the level of confidence and ability to detect fraudulent financial statements could be used.

The variables that measured big data competence showed very satisfactory results in validity and reliability testing, with an AVE value of 0.711, Cronbach's Alpha value of 0.865, and C.R. of 0.908. The self-efficacy variable obtained an AVE value of 0.748, Cronbach's Alpha value of 0.916, and C.R. of 0.937. Furthermore, the financial statement fraud detection variable obtained an AVE value of 0.816, Cronbach's Alpha value of 0.924, and C.R. of 0.947. The three variables, namely big data competence, self-

efficacy, and financial statement fraud detection, had an AVE value that exceeded 0.5, a Cronbach's Alpha value that was greater than 0.6, and a C.R. which was higher than 0.7. This showed that these variables were valid and reliable for use in this study. Testing the significance of the effect of the independent variable on the dependent variable was measured by testing the hypothesis, with a P value <0.05 indicating that the hypothesis was accepted and significant.

With the test results showing good validity and reliability, as well as the significant influence of the independent variables on the dependent variable, it can be concluded that big data competence and self-efficacy had a significant influence on the detection of financial statement fraud. These findings supported the hypothesis put forward in the study and indicated that auditors with high big data competence and strong self-efficacy had a better ability to detect fraud in financial reports. These results can make an important contribution to the development of financial auditing theory and practice, as well as provide valuable insights for practitioners and researchers in this field.

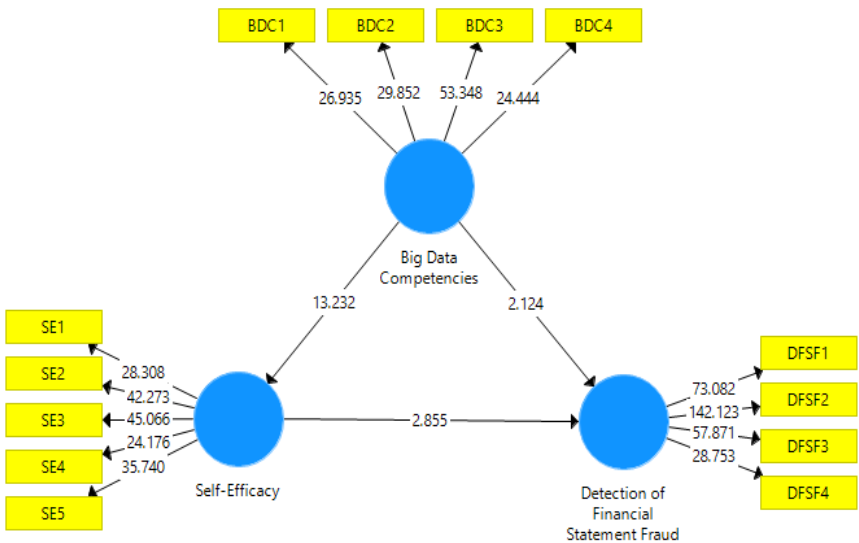

Figure 2: Measurement Model

Table 3: Hypothesis Testing

Hypothesis	Original (O)	Mean (M)	Std. Deviation	T Statistics	P Values
Big Data Competencies -> Self-Efficacy	0.548	0.554	0.041	13.232	0.000
Big Data Competencies -> Detection of Financial Statement Fraud	0.185	0.198	0.087	2.124	0.035
Self-Efficacy -> Detection of Financial Statement Fraud	0.310	0.300	0.109	2.855	0.005
Big Data Competencies -> Self-Efficacy -> Detection of Financial Statement Fraud	0.170	0.166	0.061	2.794	0.006

Source: Processed data (2023)

The results of hypothesis testing set the first hypothesis, which examined the correlation between big data competencies and self-efficacy, also yielded a P value below 0.05, specifically 0.000. Thus, big data competencies had a significant influence on self-efficacy. The second hypothesis: The effect of big data competencies on the detection of financial statement fraud had a P value of less than 0.05, which was 0.035. This meant that the second hypothesis in this study was significant supporting previous research by Griffin and Wright (2015).

Furthermore, in the third hypothesis test: Self-efficacy has a significant impact on the identification of financial statement fraud, as indicated by the P value of 0.005. These results supported the results of previous research conducted by Tian et al. (2019). In the fourth hypothesis, where self-efficacy was placed as a variable that mediates the relationship of big data competencies to detection of financial statement fraud, obtained a P value of 0.006, value less than 0.05. That is, the fourth hypothesis was accepted and self-efficacy could be used as a suitable mediating variable in mediating the relationship of big data competencies to the detection of financial statement fraud.

These results provide strong evidence that big data competence and self-efficacy have an important role in detecting financial statement fraud. Big data competence provides the necessary knowledge and skills for auditors to manage and analyze data effectively, while self-efficacy provides the confidence and motivation needed to identify fraud in financial reports. These findings have significant practical implications for internal auditors

and organizations in preparing auditors to face challenges in the big data era. In dealing with the complexity and volume of large data, auditors with high big data competence and strong self-efficacy will be better able to detect fraud accurately and efficiently.

DISCUSSION

This study showed that big data competence and self-efficacy had an important role in detecting fraudulent financial statements by internal auditors. The results of hypothesis testing showed that big data competence had a significant effect on internal auditor self-efficacy. This means that the higher the level of big data competency possessed by internal auditors, the higher their level of self-efficacy. This study also found that big data competence had a significant influence on the detection of financial statement fraud by internal auditors. Internal auditors who have high big data competence will have the necessary knowledge and skills to manage and analyze data effectively, so that they are better able to detect signs of fraud in financial reports. This finding is consistent with the findings of Joshi and Marthandan (2020) and Garven and Scarlata (2020) which showed that internal auditors with high big data competency are more likely to have the ability to manage and analyze data effectively. Where companies are often faced with diverse industries and complex regulations, it is important for internal auditors to have a deep understanding of how to apply these big data competencies to detect potential fraud in financial reports.

In addition, the results of this study also indicated that the internal auditor's self-efficacy had a significant influence on the identification of fraudulent financial statements. Internal auditors who have strong self-efficacy will tend to be more confident in dealing with tasks involving fraud detection. They will have confidence in their ability to identify signs of fraud and take the necessary action. This study showed that self-efficacy can act as a mediating variable in the relationship between big data competence and fraud detection of financial statements by internal auditors. This means that self-efficacy can be an intermediary factor that influences the extent to which big data competence influences fraud detection. This finding is in line with the findings of Appelbaum et al. (2017) and Atmaja and Sukartha (2021) who stated that by having strong self-efficacy, internal auditors can

optimize the use of their big data competencies to better detect fraud. In Indonesia, where the business culture and legal challenges may be different from other countries, increasing self-efficacy can help internal auditors to remain objective and trustworthy in conducting audits. High self-confidence can encourage internal auditors to act proactively, conduct in-depth analysis, and face challenges with confidence, thereby increasing the likelihood of fraud detection.

In facing the big data era in Indonesia, organizations need to pay attention not only to developing the technical competence of internal auditors but also psychological aspects that can influence their performance. This could include a more holistic training program, which focuses not only on understanding big data technologies but also on developing internal auditors' leadership skills and self-motivation. The results of this study provide important insights for practitioners and organizations in developing appropriate strategies and training programs to improve the ability of internal auditors to detect fraudulent financial statements. In the increasingly advanced era of big data, internal auditors need to have sufficient big data competence and strong self-efficacy to be able to face challenges in managing and analyzing complex data. By strengthening big data competence and internal auditor self-efficacy, organizations can improve their ability to detect and prevent fraudulent financial statements that can harm the company. This research has significant implications for practitioners and organizations in Indonesia in the context of developing strategies to improve the ability of internal auditors to detect fraudulent financial reports. In Indonesia, where business and regulatory challenges may have unique characteristics, understanding the role of big data competencies and self-efficacy in this context becomes increasingly important.

CONCLUSION

Based on the outcome of the conducted analysis tests, it can be deduced that big data competencies have a positive and significant impact on one's self-efficacy. This shows that the ability to manage, analyze, and utilize big data effectively can increase the self-efficacy of internal auditors. The big data competency variable significantly influences the detection of financial statement fraud. These results indicate that internal auditors who have big data competence are better able to detect fraudulent financial statements.

Additionally, there exists a positive and significant correlation between self-efficacy and the detection of financial statement fraud. The confidence internal auditors have in their own capabilities can influence their effectiveness in identifying fraudulent financial statements. Moreover, self-efficacy plays a crucial role as a mediating variable, mediating the relationship between big data competencies and the detection of financial statement fraud. That is, self-efficacy is a factor that can influence the extent to which big data competencies can have an impact on the ability of internal auditors to detect fraudulent financial statements.

This study underscores the significance of enhancing the big data competencies of internal auditors in order to enhance their effectiveness in detecting fraudulent financial statements. Companies and organizations in Indonesia need to develop training and development programs that strengthen the capabilities of internal auditors in this regard. This study shows that self-confidence (self-efficacy) plays an important role in the ability of internal auditors to detect fraudulent financial statements. Therefore, companies and organizations need to pay attention to this psychological factor in the development and empowerment of internal auditors. Thus, this research can contribute to understanding the importance of big data competencies and self-efficacy in detecting financial statement fraud, as well as providing advice for companies and organizations in improving the ability of internal auditors and preventing fraud. One of the limitations in this research was the use of variables used to influence the detection of financial statement fraud. Although this research focused on big data competency and self-efficacy, there are still other factors that can influence fraud detection, such as organizational integrity, internal policies, or corporate culture, which are not explained in this research. Therefore, it is recommended that future research analyze the influence of other variables such as organizational integrity, internal policies, or corporate culture in detecting fraud.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

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